Laboratory 7: Path-Dependent and American Options

Needed Bloomberg Skills

- Change the examined period.
  - Start Date..End Date
- Change the expiration date.
  - Expiry
- Change the sampling period.
  - Frequency
- Change the averaging and type of an Asian option.
  - Type
- Change the type of a lookback option.
  - Type
- Actually perform the calculation.
  - Calculate
- Access the pricing screen for American options.
  - OVME..Exercise..American

Assignment

All of these questions should be answered for your company using continuous Black-Scholes.

1. Now let’s examine some path-dependent options. In each case below, the expiration date should be in one year, and the frequency should be daily.

   (a) Consider a fixed-strike lookback call. We want to see how the price of the option varies with the lookback period \([t_1, T]\) (i.e., the period over which you maximize). How does the option price change as \(t_1\) changes? Explain your answer financially.

   (b) Repeat your analysis for a floating-strike lookback call. (Note that in this case the lookback uses the minimum so that the option actually has value.)

   (c) Repeat your analysis (both kinds of strikes) for an Asian call with geometric averaging.
2. On the option pricing screen, compare the price of an American and European call option under continuous Black-Scholes with the same strike and expiration date. Explain your result financially.

3. Repeat the analysis in #1 for a put option. Do you see anything odd?